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Chen

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(54) **TABLE CUTTING MACHINE**

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B28D 7/02 (2006.01)
B28D 7/00 (2006.01)

(52) **U.S. Cl.**
CPC .. ***B28D 7/02*** (2013.01); ***B28D 7/00*** (2013.01); *Y10T 83/263* (2015.04)

(58) **Field of Classification Search**
CPC B28D 7/02; B28D 7/00; Y10T 83/263
USPC 83/168, 169, 170, 171
See application file for complete search history.

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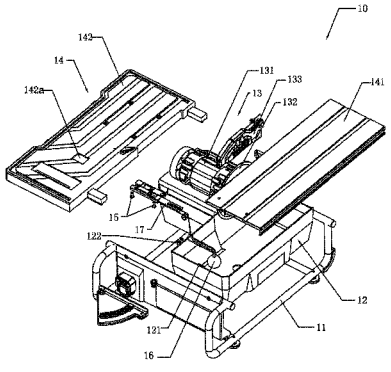
(57) **ABSTRACT**

A table cutting machine includes a table for carrying an object to be cut; a cutting device, associated with the table, for cutting the object to be cut; a water tank for providing a cooling water to the cutting device; and a water level indicating device for indirectly indicating a water level of the cooling water from a top of the table or a side of the water tank. The device thus enables the user to observe the water level from the top of the table or the side of the water tank of the table cutting machine without removing the table during the observation.

20 Claims, 6 Drawing Sheets



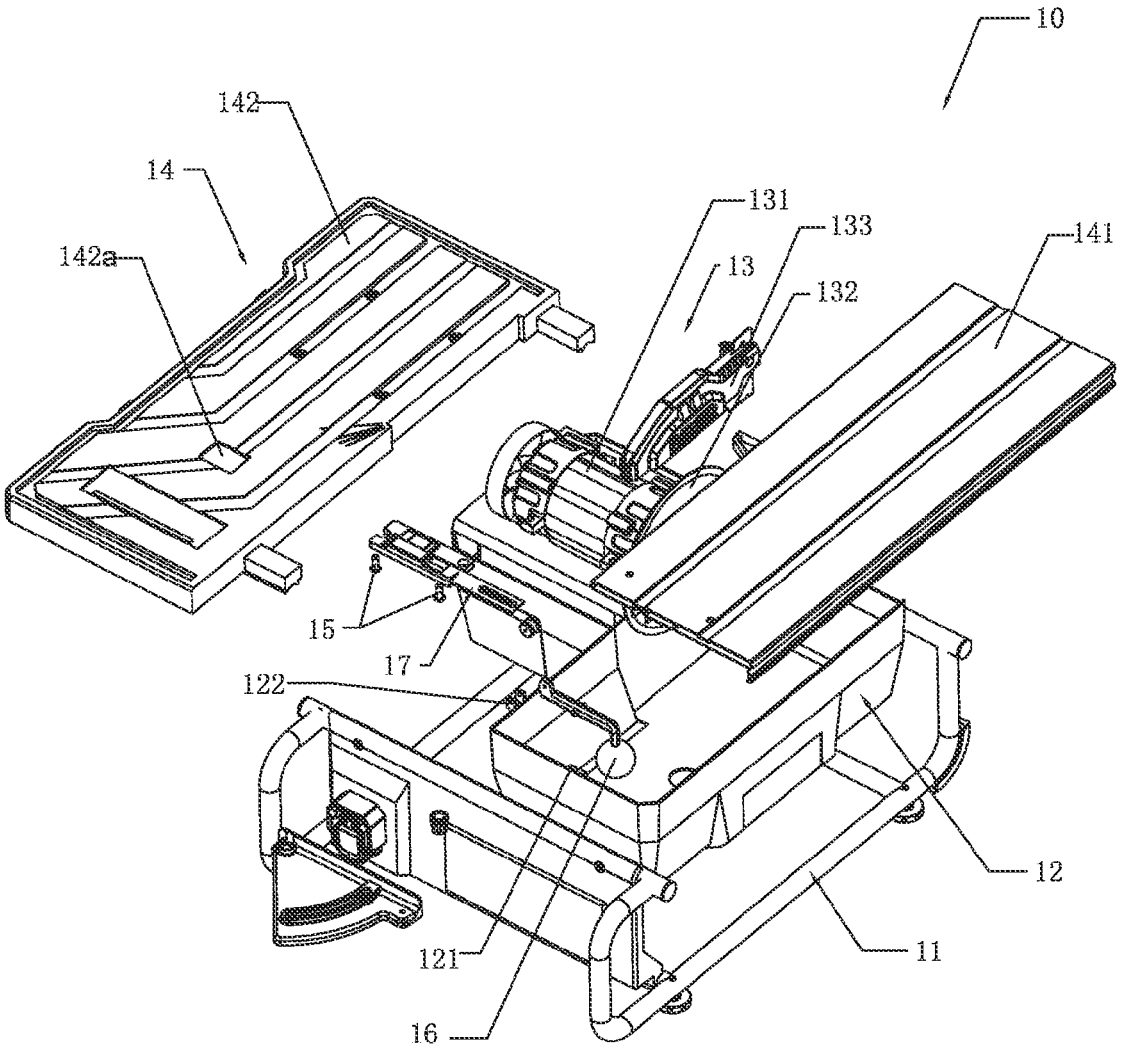


FIG. 1

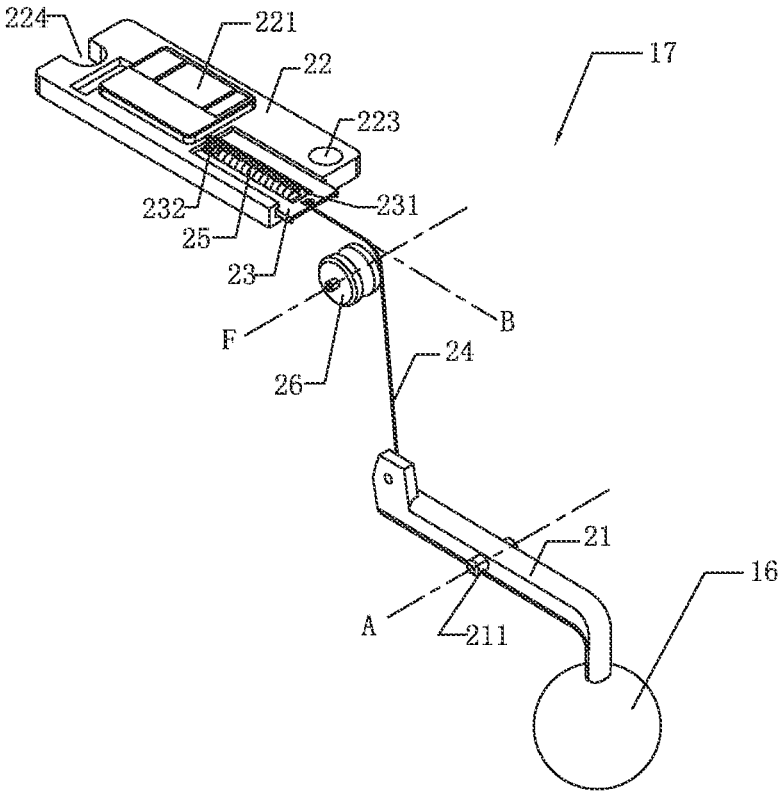


FIG. 2

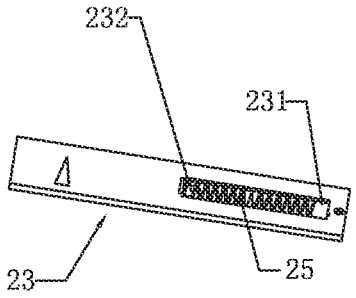


FIG. 3

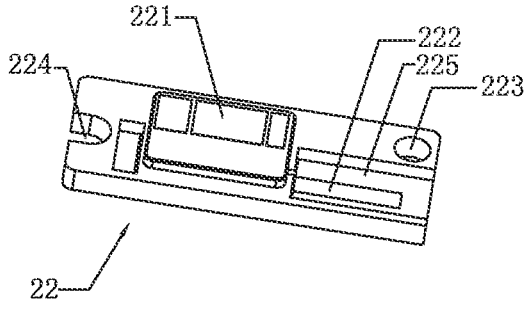


FIG. 4

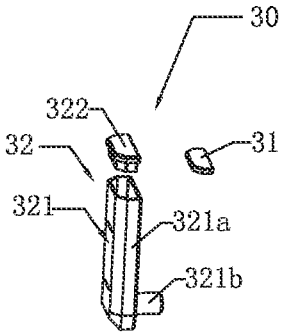

30
322
32
31
321
321a
321b

FIG. 5

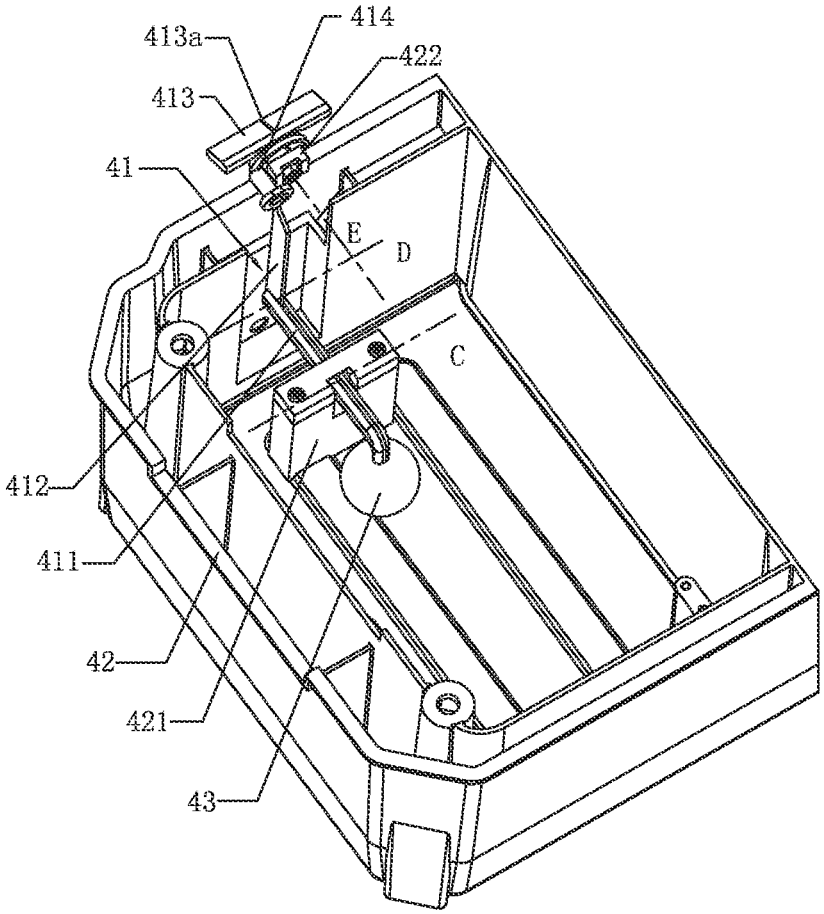

414
413a
422
413
41
E
D
C
412
411
42
421
43

FIG. 6

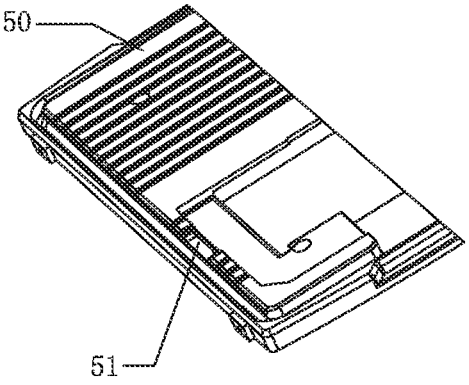


FIG. 7

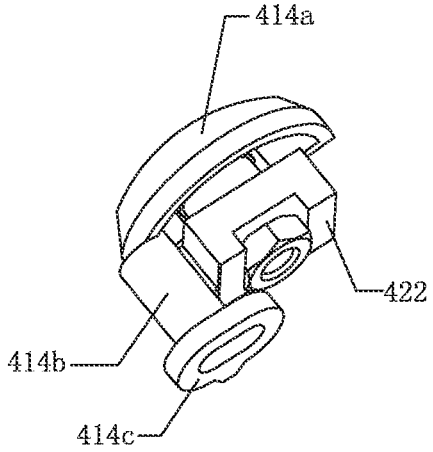


FIG. 8

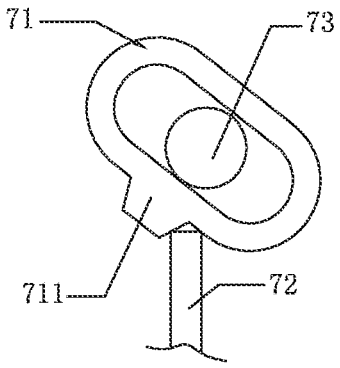


FIG. 9

TABLE CUTTING MACHINE

RELATED APPLICTION INFORMATION

This application claims the benefit of CN 201310335182.3, filed on Aug. 2, 2013, the disclosure of which is incorporated herein by reference in its entirety.

FIELD OF THE DISCLOSURE

The subject disclosure relates to a table cutting machine having a water tank.

BACKGROUND OF THE DISCLOSURE

A table cutting machine is a special cutting machine for cutting stone material, such as tile, and its main cutting tool is a circular saw blade. During the cutting process, the saw blade is driven by a motor to rotate at a high speed so as to cut an object to be cut.

During the specific cutting process, the saw blade may generate a lot of heat due to friction, and the work life of the saw blade may be reduced if the saw blade cannot be cooled duly.

Thus, the current table cutting machine generally has a water tank, and the saw blade may protrude into the cooling water in the water tank through a slot or an opening formed in the table.

The current table cutting machine does not have a device for observing the water level in the water tank or a device for alerting the water level, thus the user only observes and judges the water level through the slot in the table. Now, there is no table cutting machine having a water level indicating device.

SUMMARY

In order to overcome the defects in the prior art, the following generally describes a table cutting machine which can observe the water level conveniently and send an alarm to the user about the water level.

More particularly, the following describes a table cutting machine, comprising: a table for positioning an object to be cut; a cutting device for cutting the object to be cut; a water tank for accommodating a cooling liquid; a water level indicating device for indirectly indicating a height of the liquid level of the cooling liquid in the water tank from the table; wherein the water tank has a water storing space with a top opening, and the table is mounted above the water tank and covers the opening of the water tank.

Furthermore, the water level indicating device may comprise a buoyancy ball and an indicating assembly; wherein the indicating assembly may comprise: a connecting rod pivotally connected to the water tank about a first axis; a water level ruler mounted to the table; a vernier slidably connected to the water level ruler along a second axis; a flexible member for connecting the connecting rod with the vernier; a driving member for driving the vernier to always move towards a position indicating the lowest water level; and an idler wheel for guiding the flexible member; wherein the buoyancy ball is arranged on one end of the connecting rod, and the other end of the connecting rod is connected to one end of the flexible member, and the other end of the flexible member is connected to one end of the vernier.

Furthermore, the water level indicating device may comprise a buoyancy ball and an indicating assembly; wherein the indicating assembly comprises a buoyancy connecting rod pivotally connected to the water tank about a third axis and with one end fixedly connected to the buoyancy ball; a transmission connecting rod pivotally connected to the other end of the buoyancy connecting rod about a fourth axis; a displaying window fixed in a through hole formed in the table; and a rotating assembly for displaying the water level in the displaying window by its rotation.

Furthermore, the water level indicating device may comprise a buoy and an indicating assembly, wherein the indicating assembly comprises a transparent indicating box fixed to one side of the water tank and having an accommodating space communicated with the water storing space in the interior of the water tank, and the buoy is accommodated in the accommodating space of the indicating box.

As will be understood, the described device provides an advantage in that the user is enabled to observe the water level of the cooling water from the top of the table or the side of the water tank of the table cutting machine without removing the table during the observation. Moreover, the condition of the water level can be reflected duly and effectively, thereby preventing the failure caused by lacking water.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic view of an exemplary table cutting machine constructed according to the description which follows.

FIG. **2** is a schematic view of an exemplary water level indicating device usable with the machine shown in FIG. **1**.

FIG. **3** is a schematic view of an exemplary vernier plate and spiral spring of the device shown in FIG. **2**.

FIG. **4** is a schematic view of an exemplary water level ruler in the device in FIG. **2**.

FIG. **5** is a schematic view of an exemplary water level indicating device usable with the machine shown in FIG. **1**.

FIG. **6** is a schematic view of an exemplary water level indicating device and water tank usable with the machine shown in FIG. **1**.

FIG. **7** is a partial schematic view of an exemplary table for use with the water level indicating device as shown in FIG. **6**.

FIG. **8** is a schematic view of an exemplary rotating assembly of the device shown in FIG. **6**.

FIG. **9** is a schematic view of an exemplary connection between a transmission cam and a transmission connecting rod in the device shown in FIG. **6**.

DETAILED DESCRIPTION

The present invention will be described in detail with reference to the drawings embodiments.

As shown in FIGS. **1-4**, an exemplary table cutting machine **10** comprises a table **14** for positioning an object to be cut, a cutting device **13** for cutting the object to be cut on the table **14**, and a water tank **12** for providing a cooling water to the cutting device **13**.

The water tank **12** and the cutting device **13** are mounted on a supporting frame **11**. The supporting frame **11** is mainly used to provide a support so as to enable the whole table cutting machine to be supported on a relative flat surface. The main positioning plane of the table **14** should be parallel to a horizontal plane. As shown in FIG. **1**, the water tank **12** has a box structure with a top opening, and a water storing space is formed in the interior of the box structure.

The cutting device **13** is fixed above the supporting frame **11**. Generally speaking, the cutting device **13** comprises a motor **131**, a saw blade **132** and a shield **133**. The motor **131**

can drive the saw blade **13** to rotate to perform a cutting, and the shield **133** is mainly used to provide a protection during the operation.

The table **14** is composed of two main portions, i.e., a first table **141** and a second table **142**, arranged on two opposite sides of the saw blade **132** respectively. A lower edge portion of the saw blade **132** can protrude into the water storing space of the water tank **12** through a gap between the first table **141** and the second table **142**. When sufficient water is accommodated in the water tank **12**, the saw blade **32** can contact the water to achieve a cooling.

As a preferred solution, the first table **141** covers the top side of the water tank **12** and closes the opening. The connection formed by the first table **141** and the water tank **12** may be easily removed so as to fill water into the water tank **12** after the connection is removed. In contrast, the second table **142** is mainly used to cover the motor **131** and the corresponding transmission portions.

The table cutting machine **10** further comprises a water level indicating device for indicating the water level of the cooling water in the water tank **12** from a top of the table **14** and a side of the water tank **12**.

Specifically speaking, the water level indicating device comprises a buoy **16** for detecting the water level via its buoyancy and an indicating assembly **17** for indicating the water level by the position of the buoy **16**. The buoy **16** is a member for reflecting the position of the liquid surface by buoyancy principle, and the indicating assembly **17** indirectly indicates the water level of the cooling water in the water tank **12** by the display of the position of the buoy **16**. The buoy **16** is arranged in the interior of the water tank **12**, and the indicating assembly **17** is mainly used to constitute an indicating interface for providing a prompt to the user at the top of the table **14** or the side of the water tank **12**, because these two positions are most easy to observe when the user operates the table cutting machine **10**.

As shown in FIGS. **1-4**, the buoy **16** may be a buoyancy ball **161**. The buoyancy ball **161** may be formed by a plastic material having a density smaller than water or formed by a metal material with a hollow structure.

In the figures, the indicating assembly comprises a connecting rod **21**, a water level ruler **22**, a vernier plate **23**, a flexible member **24**, a spiral spring **25** and an idler wheel **26**.

One end of the connecting rod **21** is fixedly connected to the buoyancy ball **161**, and the other end is fixedly connected to the flexible member **24**. The connecting rod **21** and the water tank **12** form a pivoting connection about a first axis A. Specifically, the connecting rod **21** has a rotating shaft **211** for forming the pivoting connection. The rotating shaft **211** may be integrally formed with the other parts of the connecting rod **21**, as shown in FIG. **2**, or may be formed by a rotating shaft member independent from the connecting rod **21**. The water tank **21** has a supporting base **121**. The supporting base **121** is provided with a groove for accommodating the connecting rod **21** and a shaft hole formed in the wall of the groove and mated with the rotating shaft **211**. It should be noted that in order to ensure a sufficient space for the buoyancy ball **161** to float upwards and downwards, the supporting base **121** should have sufficient height and the portion of the connecting rod **21** at the side for fixing the buoyancy ball **161** should have sufficient length.

The other end of the flexible member **24** is fixedly connected to one end of the vernier plate **23**. Preferably, the flexible member **24** may pass through the through holes formed in the vernier plate **23** and the connecting rod **21** respectively and then achieve a connection by connecting means such as knotting and welding. The flexible member **24** is mainly used to perform a transmission. In order to tighten and guide the flexible member **24**, the idler wheel **26** is provided in this embodiment. A wheel shaft axis F of the idler wheel **26** is parallel to the first axis A, and cooperates with a shaft bracket **122** formed by the top end of the wall of the water tank **12** through its wheel shaft so as to be pivotally connected to the water tank **12**. Certainly, if the structure of the water tank **12** is complicated and the flexible member **24** needs to be guided many times, there may be more than one idler wheel **26**, and the direction of each idler wheel may be set according to the actual requirements, which are not limited to the present embodiment.

The water level ruler **22** is provided with an inserting groove **225**, and the vernier plate **23** is inserted to the inserting groove **225** and thus forms a sliding connection with the inserting groove **225** along a second axis B. The water level ruler **22** is mainly used to be fixedly connected to the first table **14**, and provide a visible interface for indicating the water level, and indicate the moving position of the vernier plate **23** through its own scales so that the user can obtain the specific position of the water level. In order to be fixedly connected to the first table **142**, the water level ruler **22** is provided with a through hole **223** and an indentation groove **224** at two ends respectively. The water level ruler **22** may be fixedly connected to the first table **142** from the bottom side through two fastening bolts **15** mating with the through hole **223** and the indentation groove **224** respectively. In order to observe the condition of the water level ruler **22**, the first table **142** is provided with a table through hole **142***a* at the installing position of the water level ruler **22** on the first table **142**, in order to reveal the portion of the water level ruler **22** for displaying.

As a preferred solution, both the first axis A and the second axis B are parallel to the horizontal plane, and the first axis A is perpendicular to the second axis B. The first axis A and the second axis B are parallel to the horizontal plane means that in the normal use condition, the direction of the rotating shaft of the connection rod **21** and the water tank **12** and the direction in which the vernier plate is slidably connected to the water level ruler are parallel to the horizontal plane, but as for the relative relation therebetween, the first axis A is perpendicular to the second axis B.

The water level ruler **22** has an observing window **221** at the top thereof, and one end of the vernier plate **23** which is not connected to the flexible member **24** is inserted into the bottom of the observing window **221**. The observing window **221** covers one end of the sliding stroke of the vernier plate **23**. The observing window **221** is at least provided with a transparent portion in the sliding direction of the vernier plate **23**. As such, the user can judge the real time condition of the water level by observing the sliding condition of the vernier plate **23**. As a further solution, the observing window **221** is provided with scales for indicating the water level, and the vernier plate **23** is provided with indicating arrows correspondingly.

As a preferred solution, the observing window **221** may project beyond the peripheral portions and then be inserted into the table through hole **142***a*, thereby having a larger visible angle and facilitating the observation of the user.

As shown in FIGS. **1-2**, when sufficient water is filled in the water tank **12**, the buoyancy ball **161** floats in the liquid surface under the action of buoyancy. Then, the end of the connecting rod **21** connected to the buoyancy ball **161** rises, and the other end connected to the flexible member **24** descends. At that moment, the vernier plate **23** is pulled to move away from the water level ruler **22**. Contrarily, when the liquid surface descends, the buoyancy ball **161** descends with

the liquid surface accordingly. It should be noted that when the liquid surface descends to a relative low position, it cannot be ensured that the vernier plate **23** can move to a position for accurately indicating the liquid surface if the vernier plate **23** is pulled by the buoyancy ball **161** only, because the supporting base **121** per se has a certain height.

Referring to FIGS. **2-4**, as a preferred solution, in order to solve the problem that the vernier plate **23** cannot accurately indicate the water level when the water level is relative low, the water level ruler **22** is provided with a first slotted hole **222**, and the portion of the vernier plate **23** overlapping with the first slotted hole **222** is provided with a second slotted hole **231**. The spiral spring **25** is arranged in the overlapping portion of the first slotted hole **222** and the second slotted hole **231**. One end of the spiral spring **25** abuts against one end of the first slotted hole **222** adjacent to the buoyancy ball **161**, and the other end abuts against one end of the second slotted hole **231** away from the buoyancy ball **161**. As a further solution, the second slotted hole **231** is provided with a positioning post **232** for fixing the spiral spring **25**. The positioning post **232** can fix the end of the spiral spring **25** better and more reliably so that the spiral spring **25** cannot be removed easily. Certainly, other common embodiments for fixing the spiral spring **25** may also be used herein.

As shown in FIG. **5**, the water level indicating device can be used to facilitate the observation of the user from the side of the machine.

The buoy in the water level indicating device **30** is an indicating buoy **31** which can float in the water surface. As a preferred solution, the indicating buoy **31** has bright color for facilitating the observation, and also has a certain shape size for facilitating the observation. The indicating assembly in the water level indicating device comprises a transparent indicating box **32**, and a hollow chamber is formed in the indicating box **32** and communicated with the water storing space in the interior of the water tank. The indicating box **32** is fixed on the side of the water tank.

Specifically, the indicating box **32** comprises a box body **321** having a top opening and a box cover **322** for closing the opening of the box body **321**. The box cover **322** is mounted at the opening of the box body **321**, and the box body **321** comprises an indicating portion **321***a* for observation from the side of the water tank and a communicating portion **321***b* for passing through the wall of the water tank. The indicating portion **321** a should have a certain size in the height direction of the water tank, and may be provided with scales for indicating the water level.

As a preferred solution, the shape of the cross section of the indicating buoy **31** is similar to and slightly smaller than that of the indicating portion **321***a* of the box body **321**. In order to better arrange the indicating box **32**, a groove may be formed in the side of the water tank, and the indicating box **32** may mounted in the groove. It should be noted that the communicating portion **321***b* actually passes through the side of the water tank. In order to prevent water leakage, a sealing member such as sealing ring may be arranged at the jointing position of the communicating portion **321***b* and the side wall of the water tank correspondingly.

As an improvement of the solution in FIG. **5**, the indicating box **32** is not provided with the buoy **31**, since the user can observe the water level of the cooling water through the indicating box even if the indicating box **32** is not provided with the buoy **31**.

It can be seen from the above description that the solution shown in FIG. **5** is relatively simple to achieve, because it is mounted to the side of the water tank, which is the main portion capable of directly reflecting the height direction. But, the top of the table may be the best observation position for the user.

Thus, as a further preferred solution, the table cutting machine may comprise two water level indicating devices as shown in FIG. **1** and FIG. **5** respectively, thereby comprehensively indicating the water level.

Referring to FIGS. **6-9**, the buoyancy body may also be a buoyancy ball **43**, and the specific indicating assembly in the water level indicating device **41** may comprise a buoyancy connecting rod **411**, a transmission connecting rod **412**, a displaying window **413** and a rotating assembly **414**.

The buoyancy connecting rod **411** has one end fixedly connected to the buoyancy ball **43**, and is pivotally connected to the water tank **42** about a third axis C. The specific form may be seen from the example shown in FIG. **1**, and the difference is that the other end of the buoyancy connecting rod **411** is pivotally connected to one end of the transmission connecting rod **412** about a fourth straight line D which is parallel to the third axis C. The transmission connecting rod **412** is mainly used to achieve a transmission, and transmits the movement of the buoyancy connecting rod **411** to the rotating assembly **414**, thus the other end of the transmission connecting rod **412** should contact the rotating assembly **414**.

The rotating assembly **414** comprises an indicating member **414***a*, a mounting post **414***b* and a transmission cam **414***c*. The indicating member **414***a* is pivotally connected to the wall of the water tank **42** about a fifth straight line E. Specifically, the indicating member **414***a* is pivotally connected to the water tank **42** through a mounting structure **422** formed on the wall of the water tank **42**. The mounting structure **422** is formed on the top of the wall of the water tank **42**.

The third axis C, the fourth straight line D and the fifth straight line E are all parallel to the horizontal plane, wherein the third axis C is parallel to the fourth straight line D, and the fifth straight line E is perpendicular to the third axis C, thus the fifth straight line E should be perpendicular to the fourth straight line D.

The mounting post **414***b* is fixedly connected to the indicating member **414***a* by one end thereof, and the other end is fixedly connected to the transmission cam **414***c*. Further, the axis of the mounting post **414***b* is far from the rotating axis of the indicating member **414***a*, thus the indicating member **414***a* may swing accordingly when the transmission connecting rod **412** drives the mounting post **414***b*.

As a preferred solution, the indicating member **414***a* has an arc or a cone frustum side, and a mark is arranged on the side, thus the indicating member **414***a* can indicate the water lever by means of the mark when swinging.

During the rotation of the indicating member **414***a*, the position of the mounting post **414***b* is changed. In order to make the top end of the transmission connecting rod **412** always drive the mounting post **414***b*, as shown in FIG. **9**, the transmission cam **71** has a transmission projection **711**. The transmission projection **711** enables the top end of the transmission connecting rod **72** to effectively support the mounting post **73** through the transmission projection **711** even if the position of the mounting post **73** has been changed due to the rotation of the indicating member. It is also contemplated that the shape contour line of the transmission cam **71** can comprise two symmetrical semicircular edges and a straight line edge and a projecting edge for connecting the two symmetrical semicircular edges. The projecting edge comprises three adjacent straight lines which form an isosceles trapezoid. The mounting post **73** can be mounted to the transmission cam **71** through a waist-shaped hole formed in the transmission cam **71**.

As shown in FIG. **7**, the table **50** can be provided with a through hole **51** for mounting the displaying window. The user can observe the displaying window from the top of the table **50** and obtain the specific condition of the water level.

As shown in FIG. **6**, the displaying window **413** can be provided with an indicating mark **413***a*.

Further, in order to overcome the problem of a relative low water level when the user ignores the water level indicating device without observing carefully, as a preferred solution and based on the above contents, the table cutting machine may further comprise an electrical alarming device which may be triggered by the buoy at an alerting position to send an alarm. Specifically speaking, the electrical alarming device comprises a detecting device which may be triggered by the buoy and an alarming device for sending an alarm. The detecting device may be a contact switch, and the alarming device is a LED light, speaker, or the like which is electrically connected to the contact switch.

In a specific configuration, the contact switch may be arranged at other positions for detecting the position of the buoy or other structures coupled with the buoy. Once they move to the position representative of the alerting water level, the contact switch is triggered to control the LED light to flicker, thereby sending an alarm to the user.

Certainly, the detecting device may be other detecting elements, and the alarming device may also be other devices such as a buzzer.

The above illustrates and describes basic principles, main features and advantages of the present invention. Those skilled in the art should appreciate that the above embodiments do not limit the present invention in any form. Technical solutions obtained by equivalent substitution or equivalent variations all fall within the scope of the present invention.

What is claimed is:

1. A table cutting machine, comprising:

a table for carrying an object to be cut;

a cutting device associated with the table for cutting the object to be cut;

a water tank for accommodating a cooling liquid to be contacted by at least a portion of the cutting device; and

a water level indicating device for indirectly indicating a height of a liquid surface of the cooling liquid in the water tank from the table;

wherein the water tank comprises a water storing space with a top opening, and the table is mounted above the water tank and covers the opening of the water tank.

2. The table cutting machine according to claim **1**, wherein the water level indicating device comprises a buoyancy ball and an indicating assembly wherein the indicating assembly comprises:

a connecting rod pivotally connected to the water tank about a first axis;

a water level ruler mounted to the table;

a vernier slidably connected to the water level ruler along a second axis;

a flexible member for connecting the connecting rod with the vernier;

a driving member for driving the vernier to always move close to a position indicating the lowest water level; and

an idler wheel for guiding the flexible member;

wherein the buoyancy ball is arranged on one end of the connecting rod, and the other end of the connecting rod is connected to one end of the flexible member, and the other end of the flexible member is connected to one end of the vernier.

3. The table cutting machine according to claim **2**, wherein the first axis is perpendicular to the second axis, and a wheel shaft of the idler wheel is parallel to the first axis.

4. The table cutting machine according to claim **3**, wherein the water level ruler comprises:

an inserting groove for accommodating the vernier to move therein; and

an observing window for observing the position of the vernier in the inserting groove.

5. The table cutting machine according to claim **4**, wherein the vernier is a vernier plate with one end connected to the flexible member and the other end inserted into the inserting groove.

6. The table cutting machine according to claim **5**, wherein the water level ruler further comprises a first slotted hole and the vernier plate further comprises a second slotted hole overlapping with the first slotted hole.

7. The table cutting machine according to claim **6**, wherein the driving member is a spiral spring with one end abutting against one side of the first slotted hole adjacent to the buoyancy ball and the other end abutting against one side of the second slotted hole away from the buoyancy ball.

8. The table cutting machine according to claim **7**, wherein the second slotted hole is provided with a positioning post for fixing the spiral spring.

9. The table cutting machine according to claim **8**, wherein the vernier plate is provided with indicating arrows, and the water level ruler is provided with scales for indicating the water level.

10. The table cutting machine according to claim **2**, wherein the table cutting machine further comprises an electronic alarming device for sending an alarm to a user when the cooling liquid in the water tank rises beyond an alerting line.

11. The table cutting machine according to claim **10**, wherein the electronic alarming device comprises a detecting device for detecting a position of the buoyancy ball and an alarming device for sending an alarm, wherein the detecting device comprises a contact switch and the alarming device is a LED light which is electrically connected to the contact switch.

12. The table cutting machine according to claim **1**, wherein the water level indicating device comprises a buoyancy ball and an indicating assembly; and the indicating assembly comprises:

a buoyancy connecting rod pivotally connected to the water tank about a third axis and fixedly connected to the buoyancy ball at one end thereof;

a transmission connecting rod pivotally connected to the other end of the buoyancy connecting rod about a fourth axis;

a displaying window fixed in a through hole formed in the table; and

a rotating assembly for displaying a water level in the displaying window by its rotation.

13. The table cutting machine according to claim **12**, wherein the rotating assembly comprises:

an indicating member pivotally connected to a wall of the water tank about a fifth straight line;

a mounting post with one end fixedly connected to the indicating member and an axis thereof away from the rotating axis of the indicating member; and

a transmission cam mounted to the other end of the mounting post and used to contact a top end of the transmission connecting rod;

wherein the third axis is parallel to the fourth axis, and the fifth straight line is parallel to the plane in which the third axis and the fourth axis are located and perpendicular to the third axis.

14. The table cutting machine according to claim **13**, wherein the transmission cam is provided with a projection which enables the top end of the transmission connecting rod to support the transmission cam.

15. The table cutting machine according to claim **14**, wherein the transmission cam comprises two symmetrical semicircular portions and a straight line portion and a projecting portion for connecting the two semicircular portions, and the projecting portion is trapezoidal.

16. The table cutting machine according to claim **12**, wherein the table cutting machine further comprises an electronic alarming device for sending an alarm to a user when the cooling liquid in the water tank rises beyond an alerting line.

17. The table cutting machine according to claim **16**, wherein the electronic alarming device comprises a detecting device for detecting a position of the buoyancy ball and an alarming device for sending an alarm, wherein the detecting device comprises a contact switch and the alarming device is a LED light which is electrically connected the contact switch.

18. The table cutting machine according to claim **1**, wherein the water level indicating device comprises a buoy and an indicating assembly, and the indicating assembly comprises a transparent indicating box fixed to one side of the water tank and having an accommodating space communicated with the water storing space in the interior of the water tank, and the buoy is accommodated in the accommodating space of the indicating box.

19. The table cutting machine according to claim **18**, wherein the indicating box comprises:

a box body having an opening in a top end; and

a box cover for closing the opening of the box body.

20. The table cutting machine according to claim **19**, wherein the box body comprises an indicating portion for observation from the side of the water tank and a communicating portion passing through the wall of the water tank.

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